

File No.: 14079-1US-R GH/ik

Montreal, Canada
February 13, 2002

IN THE U.S. PATENT AND TRADEMARK OFFICE

In re Application of:

JEAN-GUY CHOUINARD ET AL

For: FUEL CELL STAND-BY
ENERGY SUPPLY SYSTEM

Reissue of Patent No.: 6,028,414

Issued: February 22, 2000

Assistant Commissioner for Patents
Washington, D.C. 20231
U.S.A.

PRELIMINARY AMENDMENT

Sir:

Kindly amend the application as follows:

IN THE SPECIFICATION and referring to U.S. Patent 6,028,414:

At column 2, kindly cancel the sentence appearing between lines 8 to 11 and reading "The control circuit means also has power sensing means and means to control the operation of the device so as to maximize the use of the power available in the fuel cell."

At column 4, line 13, delete reference numeral "17" and substitute therefor reference numeral "27".

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IN THE CLAIMS:

Kindly amend claims 1 and 2 as follows:

1. (Amended) A fuel cell stand-by energy supply system for supplying electrical power to a device operated by power from an electrical utility in the event of a power failure, said stand-by energy supply system comprising detection means for detecting a power failure, control circuit means for monitoring said detection means and one or more conditions of said device, said control circuit means operating a fuel cell switch to connect a fuel cell or an integration fuel cell and battery d.c. supply directly or to a voltage conditioning circuit to produce an operative a.c. supply and for connecting said a.c. supply to said device to continue operation thereof during said power failure, said control circuit means having power sensing means and means to control the operation of said device so as to maximize the use of the power available in said fuel cell].
2. (Amended) A fuel cell stand-by energy supply system as claimed in claim [1] 18 wherein said control circuit means is a microcontroller.

Kindly add new claims 17 and 18 which read as follows:

--- 17. A fuel cell stand-by energy supply system as claimed in claim 1 wherein said control circuit means is provided with power sensing means to monitor power consumption of said fuel cell or said integration fuel cell and battery d.c. supply.

18. A fuel cell stand-by energy supply system as claimed in claim 17 wherein said control circuit means is further provided with means to control the operation of said device so as to maximize the use of the power available in said fuel cell or said integration fuel cell and battery d.c. supply. ---

REMARKS

Claims 1 to 18 are in the Reissue Application.

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Claim 1 has been amended whereby to delete a superfluous limitation which appeared at the end of claim 1 which defines the control circuit means as having power sensing means and also as having means to control the operation of the device so as to maximize the use of the power available in the fuel cell. These limitations are not essential for the operation of the fuel cell stand-by energy supply system of the present invention and accordingly we have claimed less than the right we have had to claim and it is now required to correct this error. When the original claim was prepared it contained this limitation and at that time we did not realize this overrestricting wording. It was only recently discovered during a telephone conference with some of the inventors and principals of the Applicant, H Power, during the month of January 2002, that claim 1 contained this restriction, which was not necessary. We now wish to correct this error by the present reissue application and it is pointed out that this error arose without any deceptive intention on the part of the Applicants. There was therefore an urgency to diligently prepare and file this reissue application. We are also surrendering the original U.S. Letters Patent 6,028,414.

Claim 1 as now amended in this amendment, we believe, defines the invention in its broadest allowable scope and it clearly, patentably distinguishes from all known prior art when considered singly or in combination.

Concerning the prior art cited in the prosecution of U.S. Patent 6,028,414, the references cited by the Examiner were discussed for their non-relevant teachings and in this respect it was pointed out that Stich et al (5,790,391) relates to a standby power system connected to an AC power line, battery and loads. The patent relates to a power conversion system for application in a stand-by power system, i.e., a method for providing AC power signal at line frequency.

Harashima (5,290,641) relates to a method of controlling the operation of a fuel cell power supply having a fuel cell, a reformer, air system, a power inverting and a control system.

Hoemann et al (4,937,513) relates to a multiple speed electric induction motor.

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Addressing now the Examiner's specific objections raised during prosecution, and specifically that claims 1, 2, 9-11 and 13-16 were rejected as being unpatentable over Stich et al in combination with Harashima, it is pointed out that Stich et al disclose the elements as claimed except for a fuel cell type battery, the fossil fuel and an electrically operated multi-speed blower motor burner and controls. Harashima teaches a controller of a fuel cell operating on fossil fuel to generate hydrogen. It has nothing to do with the invention defined in Applicant's independent claim and namely to operate a device such as a fossil fuel forced air furnace or hot water heater. The reference to a blower and a burning air blower is totally irrelevant.

In regard to claim 11, Harashima shows the thermostat monitors ambient temperature in a building enclosure and time delay circuit, refer to col. 2, lines 19-22. Not relevant whatsoever to Applicant's claim where the time delay circuit is to measure the preset (adjustable) duration of power outage; in Harashima the time delay circuit is the time between increase in the load and the necessary increase in the fuel cell temperature.

In regard to claim 13, Harashima shows the hydrocarbon fuel, refer to col. 2, lines 19-22. Again, total confusion with the hydrocarbon fuel, in Applicant's claim, the hydrocarbon fuel is the fuel for a device that also requires electricity supplied by Applicant's system. In Harashima, the hydrocarbon fuel is used to generate hydrogen that is electrochemically transformed to electricity for a load.

In regard to claim 12, it would have been obvious to one having ordinary skills in the art of utilizing the current stabilizing circuit which consists of an impedance 41, a capacitor 42 and a diode 43 connected as such would have been a filter circuit, it is a common application. Applicant's claim 12 is not a filter, but the interface between the variable DC output of a fuel cell and the input of an inverter.

Claims 3-8 are also rejected as being unpatentable over Stich et al in combination with Harashima as discussed above and further in combination with Hoemann et al. Applicant has discussed the combination of Stich et al and Harashima above. The further combination with Hoemann et al adds nothing since Applicant's

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system is connected to a multiple speed motor. Applicant simply takes advantage of the multiple speed options.

In regard to claims 3, 4 and 6, Stich et al and Harashima disclose the elements as claimed, except for a multi-speed blower motor. Hoemann et al shows a multi-speed operation of electric motor, refer to Fig. 1. Again, Applicant has explained that their claims are not on a multi-speed operation electric motor, but Applicant takes advantage of this option when available in the given device (air furnace, hot water heaters, etc.).

In regard to claim 5, Harashima shows the micro-controller providing a signal representative of temperature, refer to col. 2, line 38-55. The Harashima method is to control the operation of a fuel cell power supply totally irrelevant to Applicant's claim 5. Harashima's temperature signal is for the fuel cell; in Applicant's claim 5, the temperature is the hot air temperature in a device.

In regard to claim 7, Harashima shows that the thermostat monitors ambient temperature in a building enclosure and time delay circuit, refer to col. 2, line 19-22. Applicant has addressed this position with regard to claim 11.

In regard to claim 8, Harashima shows the fossil fuel burner, refer to col. 1, line 44. Applicant has commented on this point with respect to claim 13.

Concerning the references that are listed in the Information Disclosure Statement there is provided with that Statement a discussion of the pertinency of these references and these are no more pertinent than the ones cited in the prosecution of U.S. Patent 6,028,414.

On the basis of the above, it is submitted that claim 1 as now amended and all dependent claims are allowable over the known prior art.

In view of the cancellation of the last limitation in claim 1, Applicant has inserted two additional claims, namely claims 17 and 18. These claims merely redefine the last limitation that is being deleted from claim 1 of U.S. Patent 6,028,414 and clerical amendments have also been made thereto. No new matter is being introduced

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by these two additional claims and support thereof can be found in claim 1 and in the passage bridging lines 45 to 49 of column 3, for example.

A clerical amendment is being made at column 4, line 13 to correct an obvious typographical error. Also, the statement of invention as appearing in the paragraph bridging columns 1 and 2 is being broadened in the same fashion as the amendment made to claim 1 by deleting the last sentence therefrom.

Favourable action on the merits of this reissue application is earnestly solicited.

Respectfully,

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ATTACHMENT A

At claim 1, column 5, lines 32 to 35, of U.S. Patent 6,028,414, there is recited "said control circuit means having power sensing means and means to control the operation of said device so as to maximize the use of the power available in said fuel cell". This limitation is deemed superfluous to the invention, as the fuel cell stand-by energy supply system is operable without this limitation. It is only recently when we reviewed claim 1 that we discovered that we claimed less than we had the right to claim by having that limitation in claim 1. When the patent application Ser. No. 09/295,266 was prepared, that limitation was in the broad claiming of the application as originally drafted. We did not realize, at that time, that we were claiming less than we had the right to claim and that we were entitled to patent protection for this invention which was broader, as we now have discovered. This error arose without any deceptive intention on the part of the Applicants and we now wish to correct this error by the present reissue application. It is only recently during the month of January 2002 that this error was noted. We are therefore proceeding diligently.

It is pointed out that the fuel cell stand-by energy supply system of the present invention has a control circuit and wherein one of its features is a power sensing means whereby to monitor the power consumption of the fuel cell or the integration fuel cell and battery d.c. supply. The system can operate without it. This limitation is now recited in new claim 17. Support for claim 17 is contained in the last limitation of claim 1 of the patent, as above-noted, and as well in the passage at column 3, lines 45 to 49 of the patent, for example.

Another feature of the control circuit is that it is also provided with means to control the operation of the device so as to maximize the use of the power available in the fuel cell or the integration fuel cell and battery d.c. supply of the stand-by energy supply system. Support thereof can be found in the last limitation of claim 1. Again, the system can operate without it. Accordingly, no new matter has been introduced by these two claims.

The dependency of claim 2 has been modified to refer to claim 18, which itself is dependent on claim 17.

In reviewing the specification it is noted that there is a statement of invention paragraph bridging columns 1 and 2 of the Patent and it is therefore desirable to remove the last sentence of that paragraph which appears at column 2, lines 8 to 11. There is also a typographical error at column 4, line 13 wherein reference numeral "17" should have been "27".

Applicants also believe that the broadened claim 1 is clearly patentable over all known prior art cited in the U.S. prosecution and also the prior art brought to the Examiner's attention with this reissue application as an Information Disclosure Statement which lists the art cited in the PCT International Search Report.